

WHAT IS CLAIMED IS:

1           1.    A method in a second mobile services switching  
2           center for updating location information of a mobile station  
3           when said mobile station has moved from an area controlled  
4           by a first mobile services switching center to an area  
5           controlled by a second mobile services switching center,  
6           said method comprising:

7                adding said mobile station to a second mobile services  
8                switching center database in response to said mobile station  
9                registering with said second mobile services switching  
10               center;

11               calculating a second mobile services switching center  
12               checksum so as to include the said mobile station;

13               sending a home location register checksum to said  
14               second mobile services switching center from a home location  
15               register;

16               comparing said home location register checksum and said  
17               second mobile services switching center checksum; and

18               sending a location registration signal from said second  
19               mobile services switching center to said mobile station.

1           2.    The method as recited in claim 1, wherein said  
2           step of comparing said home location register checksum and  
3           said second mobile services switching center checksum  
4           further comprises the additional steps of:

5            sending an error signal from said second mobile  
6 services switching center to said home location register  
7 when said home location register checksum and said second  
8 mobile services switching center checksum are not equal;

9            setting said second mobile services switching center  
10 database equal to a previous correct database when said home  
11 location register checksum and said second mobile services  
12 switching center checksum are not equal;

13           sending all logged mobile stations that have been  
14 erased from said home location register to said second  
15 mobile services switching center after receiving said error  
16 signal at said home location register from said second  
17 mobile services switching center; and

18           subtracting each erased mobile station and adding each  
19 newly registered mobile station identities to said previous  
20 correct database;

21           appropriately adding and subtracting each of said  
22 mobile station identities until said home location register  
23 checksum and said second mobile services switching center  
24 checksum are equal.

1           3.    A method in an first mobile services switching  
2 center for updating location information of a mobile  
3 station, said method comprising:

4            sending a home location register checksum from a home  
5 location register to said first mobile services switching  
6 center;

7            subtracting said mobile station from a first mobile  
8 services switching center database;

9            recalculating a first mobile services switching center  
10 checksum to account for the subtracted mobile station;

11           sending an erasure acknowledge signal from said first  
12 mobile services switching center to said home location  
13 register; and

14           comparing said first mobile services switching center  
15 checksum to said home location register checksum.

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14            sending all logged mobile stations that have been  
15            erased from said home location register to said first mobile  
16            services switching center after receiving said error signal  
17            at said home location register from said first mobile  
18            services switching center;

19            subtracting each erased mobile station and adding each  
20            newly registered mobile station to said previous correct  
21            database;

22            appropriately adding and subtracting each of said  
23            mobile stations until said home location register checksum  
24            and said first mobile services switching center checksum are  
25            equal;

26            erasing the mobile stations that are resent in said  
27            logged erasures; and

28            stopping said sending of a negative acknowledge signal  
29            from said first mobile services switching center to said  
30            home location register when said first mobile services  
31            switching center checksum and said home location register  
32            checksum are equal.

1            5.    A system for updating location information of a  
2            mobile station in a second mobile services switching center  
3            when said mobile station moves from an area controlled by a  
4            first mobile services switching center to an area controlled  
5            by a second mobile services switching center, said system  
6            comprising:

7           a first mobile services switching center for  
8 communicating with said mobile station and comprising:  
9           a compare checksum procedure; and  
10           a means for calculating a checksum stored in said  
11 first mobile services switching center;  
12           a second mobile services switching center for  
13 communicating with said mobile station and comprising:  
14           a compare checksum procedure; and  
15           a means for calculating a checksum stored in said  
16 second mobile services switching center; and  
17           a home location register for providing data to a  
18 plurality of mobile services switching centers.